SURGICAL ASSET MANAGEMENT SYSTEM

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Introduction. In this paper we describe the development and implementation of a surgical processing asset management system (SAMS). This system tracks all surgical sets and instruments used at the University of Utah Medical Center (except for ophthalmology) and has been in use for 2 years on a round-the-clock basis.

Surgical Processing is the unit that stores, processes, sterilizes and provides the OR (operating room) inventory: implants, instruments, and disposable sterile goods necessary to perform surgery. The goal of the SAMS system is to maintain a record of the current inventory of sets and instruments; to maintain sterilization records; and to monitor utilization of instruments, refurbishment, taping, implants, and personnel.

Methods. SAMS is a database application which makes use of a Microsoft ACCESS database and a Microsoft Visual Basic GUI front end. It was possible to construct the functioning application in about 6 months since most of the data was already in a fairly structured format in a flat-file Q&A database. There are presently 12 workstations which simultaneously access the program.

System. The SAMS system has been in operation for 2 years (24 hours/day except for 30 min when the server is shut down for backup). The database presently contains 1640 different kinds of sets and 12,510 different kinds of instruments/items.

By making use of a novel multi-axial taxonomy of surgical instruments (i.e., ROOT, NAME, ANATOMY, ACTION, SHAPE, SIZE), the sequence number of the sets, and the tape code of the set, SAMS is able to locate any set and instrument at any time. SAMS also displays high quality images of individual instruments.

SAMS traces the sterilization of all sets and packages, so that it is possible to determine the number of sets sterilized in a given time period for each specialty, which is useful for resource management. Sets which are not used for long time periods can be identified so the instruments can be distributed to other sets. The number of times each set is sterilized per unit time is used to determine when a set needs to be refurbished and when tape codes need to be reapplied.

Evaluation. The SAMS project has provided a catalyst for re-evaluating and modifying the University of Utah Medical Center Surgical Processing mission, and provided a database application which dynamically maintains product content and quality as well as facilitating process improvement. The Director of Nursing in Perioperative Services noted that more than $400,000 was saved in the first year of use with SAMS. Although other things changed during this time, such as some personnel and policies, she estimated that more than half of this savings was due to the use of the SAMS database. Some specific benefits derived from SAMS include:

- Sterilization records are more complete and accurate
- Organized data facilitated a reorganization of individual processing workstations
- Objective productivity data for the department and for individual employees is now accessible
- Standardization (of nomenclature, instrument types, formats, etc) has increased accuracy
- Surgeon and OR Staff satisfaction with instrument sets has improved
- Utilization data is extracted to determine appropriate intervals for instrument refurbishment
- Data from SAMS was used to establish a more equitable contract with a company to refurbish surgical instruments
- Utilization data is extracted to determine appropriate intervals for instrument taping

Conclusions. We have reported our experience with the initial stages of in-house development and implementation of a surgical asset management database application. This endeavor has been quite successful overall. It has been well accepted by users and administration.

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